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ABSTRACT

An attention deficit hyperactivity disorder (ADHD) student's impulsivity and inattentiveness were interfering with his learning and that of his classmates. Prior to experimental intervention, a simple event recording was conducted over nine class periods to determine the frequency of this subject's impulsivity and inattentiveness. For ease of observation the most frequently occurring behavior was targeted for study. An ABAB reversal design was used to study the effects of regular instructional procedures (baseline) and instructional procedures recommended for ADHD children (intervention) on the subject's non-attending behavior. Baseline and intervention differed in terms of physical design, management, and curriculum and lesson presentation. Results indicated that the intervention did positively influence the subject's ability to attend. Because this experiment included multiple elements, further research will be needed to ascertain whether a smaller array of environmental variables or perhaps a single variable can produce similarly significant reductions in problem behaviors as quickly. It is also recommended that examination of holistic modifications of classroom environments be conducted over a longer time frame, as research indicates that behavioral problems may increase as length of exposure to a particular setting or task increases. Results of this study may serve to encourage teachers faced with the challenge of ADHD children to learn more about this disorder and to experiment with instructional strategies with the potential to create a workable match between the ADHD child's needs and the classroom environment. Contains 15 references. (TS)

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THE EFFECT OF ENVIRONMENTAL ACCOMMODATIONS ON ATTENDING BEHAVIOR OF AN ADHD CHAPTER I STUDENT: AN ACTION RESEARCH STUDY

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THE EFFECT OF ENVIRONMENTAL ACCOMMODATIONS ON ATTENDING BEHAVIORS OF AN ADHD CHAPTER I STUDENT: AN ACTION RESEARCH STUDY

M. Jane Greenewald and Cheryl Walsh

OBJECTIVES

This action research study grew out of a Chapter I teacher's frustration and sense of inadequacy in attempting to deal with an ADHD student's impulsivity and inattentiveness which were interfering with his learning and that of his classmates.

Addressing this concern required (a) learning about ADHD and its causes, symptoms, and treatments, (b) examining expert opinion and research related to intervention techniques that could be easily and effectively used by classroom teachers, and (c) verifying the effectiveness of recommended interventions through single-subject experimental research.

PERSPECTIVES

According to a 1991 US Department of Education study, 2.25 million children have been diagnosed with attention deficit hyperactivity disorder (ADHD), yet the majority of classroom teachers surveyed by Parker (1992) indicated a need for information about this disorder and about ways to deal effectively with ADHD children. However, most of the interventions advocated in the literature are prescriptive and exploratory in nature and validation research to date has been conducted primarily in controlled settings such as hospitals and university clinics. Consequently, experts in ADHD such as McKinney, Montague and Hocutt (1993) call for educators to conduct research to validate promising approaches and thereby assist in filling the gaps in both basic and applied research on ADHD. The present

study is a step in this direction.

Most widely advocated interventions include medication (Du Paul & Barkley, 1990; Gordon, 1991), behaviorial management techniques (Barkley, 1990; Copps, 1992; Zirpoli & Melloy, 1993), and various forms of environmental accommodations (Barkley, 1990; Braswell & Bloomquist, 1991; Copps, 1992; Reif, 1993; Rooney, 1988; Taylor, 1990; Weaver, 1991; and Zentall, 1985); these interventions are considered most effective when used in combination rather than singly. However, as Fiore, Becker and Nero (1993) note, there has been a paucity of research on interventions that speak to the day-to-day issues faced by teachers. To address this lack, this study focused on intervention techniques involving instructional methods, materials, management and classroom design that could be easily implemented by classroom teachers with little or no need for extra training and with a minimum expenditure of time.

METHOD

Subject

Of the 57 Chapter I students served by one of the researchers, 13 or 23% of the total were diagnosed as ADHD. One of the ADHD children who had particular difficulty staying on task was chosen for study. The subject, a 9 year old third grade male, had been diagnosed as ADHD at the start of first grade and was under medication for his condition. A Chapter I student since second grade, he was currently receiving remedial assistance in reading, writing and spelling with three other third graders on alternating days for 40 minute class periods.

Target Behavior

Prior to experimental intervention, a simple event recording was conducted over nine class periods to determine the frequency of the subject's impulsivity and inattentiveness. For ease of observation the most

frequently occurring behavior was targeted for study.

Observations were recorded using a counter and audiotapes of each class session. The teacher researcher responded verbally to each occurrence
with a qualifying comment to enable categorization. Impulsive behavior was defined as shouting out answers without raising one's hand or interrupting when others were talking. Non-attending behavior was defined as (a) not focusing eyes on persons speaking or on work at hand, (b) commenting on irrelevant topics, (c) playing with materials, and (d) moving about inappropriately.

Selected for intervention was non-attending behavior which occurred on average 8.5 times per class in contrast to impulsive behavior which averaged 3.7 occurrences per class period.

Design

An ABAB reversal design was used to study the effects of regular instructional procedures (baseline) and instructional procedures recommended for ADHD children (intervention) on the subject's non-attending behavior. A criterion was set to reduce the number of non-attending occurrences by 50 percent.

Procedures

The study was conducted over a seven and one- half week period from the middle of February to the middle of April.

To record occurrences of non-attending behavior simple tally marks were made on masking tape attached to the teacher's wrist. With only one type of behavior to track, audio recording was not used during the intervention period.An outside observer served to crosscheck the accuracy of the tallying. As in the pilot observation, the subject did not appear to be aware that his behaviors were being noted.

Baseline (A) and intervention (B) differed in terms of physical design, management, and curriculum and lesson presentation.

Baseline

The baseline treatment consisted of class routines in practice prior to the study.

The physical design of the classroom was such that students sat at one table in close proximity to each other and were not assigned a seat.

In managing the class, the teacher made no effort to be near the subject nor did she try to place him where he would find few distractions. There was no predictable structure to the class period; instead class activities varied daily. Class rules were not regularly reviewed at the start of class. Directions were given verbally without visual support. The curriculum focused on satisfying requests from the regular classroom teacher to review for tests, reteach skills, and preview new topics or skills. Instruction consisted primarily of explanation and practice involving oral recitation, worksheets, and games. Students had little choice in the learning activity or response mode.

Intervention

During intervention, the physical design was altered to allow students to choose where to sit for some activities (Reif, 1993;Weaver, 1990). Assigned seating at separate desks was used for independent written work and carrells were provided for students who felt dividers would improve their ability to concentrate (Paine, Radicchi, Rosellini, Deutchman &Darch, 1983; Reif, 1993).

A number of management techniques were employed. A chart of class rules and the daily routine was posted in view of everyone, and procedures were reviewed daily (Paine, Radicchi, Rosellini, Deutchman& Darch, 1983; Reif, 1993). No teaching was begun until the teacher had full attention of all the children, and light signals were used to indicate the start and end of activities and seating changes. Directions were given verbally and in writing (Braswell& Bloomquist, (1991). The teacher positioned herself near the subject, and the subject was assigned to the quietest location during independent work (Reif, 1993).

The curriculum and lesson presentation were modified to resemble a reading workshop where reading and writing were practiced in an holistic manner (Weaver, 1990). The forty minute period was divided into

four segments consisting of (1) reading aloud by the teacher, (2) sustained silent reading of self-selected materials (Reif, 1993; Weaver, 1990), (3) oral or written sharing of one's reading (Reif, 1993; Weaver, 1990), and (4) mini-lessons related to skills used during silent reading.

RESULTS

During Baseline 1, the subject's non-attending behavior occurred on average 8 times per class period while during Intervention 1 non-attending occurred on average only 2 times per period. Non-attending behaviors were thus reduced by 75 per cent and thereby exceeded the criterion of a 50 percent reduction.

With a return to baseline after the first intervention, non-attending increased more than threefold, occurring on average 6.3 times per period. When the intervention was reintroduced, the occurrence of non-attending dropped to an average of 2.6 times, again exceeding the criterion of a 50 percent reduction. Figure 1 presents daily occurrence of non-attending behavior observed during baseline and intervention period.

In the first set of baseline and intervention periods, data were stable within a narrow range; consequently data collection was limited to five sessions under each condition. During Baseline 2 data collection was shortened to three sessions because the incidence of non-attending quickly returned to Baseline 1 levels.

There was only one overlap in data points. This overlap occurred between initial observations during Baseline 2 and Intervention 2. At all other times, no data in the baseline conditions fell within the range of of the data points in the intervention conditions. The extremely small amount of overlap and the replication of responses across the A and B treatments support the conclusion that the intervention did indeed positively influence the subject's ability to attend.

SIGNIFICANCE

Results of this study may serve to encourage other teachers faced with the challenge of ADHD children to learn more about this disorder and to experiment with instructional strategies with the potential to create a workable match between the ADHD child's needs and the classroom environment.

Because this experiment included multiple elements, further research will be needed to ascertain whether a smaller array of environmental variables or perhaps a single variable can produce similarly significant reductions in problem behaviors as quickly.

It is also recommended that examination of holistic modifications of classroom environments be conducted over a longer time frame since Zentall's (1993) research indicates that behavioral problems may increase as length of exposure to a particular setting or task increases.

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Figure 1

Occurrence of Non-Attending Behavior